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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/748,365

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EXAMINER

DRODGE, JOSEPH W

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/748,365	<b>Applicant(s)</b> CHOI, KYUNG-JU	
	<b>Examiner</b> Joseph W. Drodge	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 36-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 36-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 36-39,43-47 and 59-63 remain rejected under 35 U.S.C. 103 as being unpatentable over Kahler patent 5,888,262 in view of Muller et al patent 4,954,255, Enbom patent 5,071,555 and Choi patent 6,165,241 (newly applied).

Regarding independent claims 36,62, Kahler discloses a pleated fluid filter arrangement comprising: at least one layer of flanks of filter media ( ) pleated into a plurality of longitudinally extending adjacent opposed successive pleat flanks (or face crests) of selected depth (***having sharp-nonwavy face crests and planar flanks***). ***Spacers, of adhesive, material increments which are of a form that is dimensionally stable and hence of selected length (column 4 , lines 45-65)***, provide spacing between successive pleat flanks (or face crests) to provide spaced upstream and downstream filter face crests. The pleat flanks are substantially planar, with embossments/depressions/raised surfaces and ***form flank planes***. Particularly, in the embodiments of figures (2c,3c,5c), the spacers are in the form of facing increments that are nestled against embossments/depressions/raised surfaces of the filter media surfaces (column 7, lines 15-42), while in the embodiment depicted by Figure 5d, the adhesive increments abut both the embossments/depressions of the planar surfaces as well as to the planes of the pleat flanks near the crests that join adjacent pleat flank sections.

*The top or fold edges, crests, of the pleat flanks together form a substantially single planar surface, the facing increments being adhered to the planar surfaces at points which are spaced from the pleat crests. The material increments are applied to the flank planes, and extend adjacently and centrally oriented with respect to an upstream-facing and downstream-facing flank plane (figures).*

*Kahler further discloses engaging pairs of increments of spacers (see for instance pairs of increments of spacing material 13 in figures 4a, 4b, 5a and 5b, column 8, line 21-column 9, line 22).* Kahler further discloses pairs of engaging, adhesive increments 16.2 in the embodiment of figure 4c, engaging pairs increments on both 1<sup>st</sup> and 2<sup>nd</sup> side of each successive pleat flank in the embodiment of figure 5c and centrally oriented adhesive increments in the embodiment of figure 2c (also see discussion at column 7, lines 20-30; column 8, lines 50-57 and column 9, lines 5-22). Column 10, line 64-column 11, line 2 suggest combining features of the various embodiments depicted in the diverse figures.

The claims all differ in requiring that the pleat flanks are manufactured to have minimal wave formation. Muller teaches a pleated fluid filter arrangement comprising: at least one layer of flanks of filter media (#22,5) pleated into a plurality of longitudinally extending adjacent opposed successive pleat flanks (or face crests) of selected depth (*having sharp-nonwavy face crests, planar flanks and, in contrast, rounded small areas of curvature or waviness of pleat edges (column 5, lines 29-32), opposite the crests. Spacers 6 or 11/12, of material increments which are of a form that is dimensionally stable and hence of selected length (column 5, lines 59-60), provide spacing between successive pleat flanks (or face crests) 5 to provide spaced upstream and downstream filter face crests. The pleat flanks 5 are substantially planar, and form*

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*flank planes*. In the embodiment of figure 9, the spacers are in the form of facing increments that are nestled against the filter media surfaces (column 5, lines 9-20 and column 6, lines 44-58). It would have been obvious to the ordinarily skilled artisan to have manufactured the pleat flanks of Kahler to accordingly have minimal wave formation, so as to have greater stability in response to pressure forces when employed in highly pressurized environments (column 3, lines 49-56).

*Also in Muller, the top or fold edges, crests, of the pleat flanks together form a substantially single planar surface, the facing increments being adhered to the planar surfaces at points which are spaced from the pleat crests. The material increments are applied to the flank planes 5, and extend adjacently and centrally oriented with respect to an upstream-facing and downstream-facing flank plane (figures 2 and 6).*

*The claims also differ from Kahler in requiring that the adhesive increments which are centrally oriented directly engage each of the 1st and 2nd sides of each of the single planes of the pleat flanks, rather than the embossments/depressions/raised surfaces thereof. However, Enbom teaches such direct engagement of the adhesive spacers extending a substantial distance along the pleat flank planes and to planes formed by pleat flanks of a pleated filter in figure 4 and column 2, lines 46-49. Also, in Choi, adhesive material for spacers directly engages pleat flank planes of opposed surfaces (figures and column 3, lines 40-55). It is further emphasized that in Kahler, in the embodiment of figures 3a and 3d, increments of adhesive spacer material are centrally located, they form pairs of engaging increments in the embodiments of figures 2c and 5c, while in the embodiment of figure 5d, increments of spacer material directly engage the planar surfaces of the pleat flanks. It would have been also*

*obvious to have combined features of each of these embodiments of Kahler, to result in pairs of adhesive increments that are centrally located, while also directly contacting the planar surfaces of the pleat flanks, as suggested especially by the Choi figures and figures 3-4 of Enbom. This would have resulted in maximizing the space of the filter, such that the filter surfaces remain rigid during filter use, while minimally reducing effective filtering surface area (objectives of Kahler). [The instant claims do not require that the engagement of adhesive increments to the planes of the pleat flanks is centrally oriented in itself].*

Regarding Claim 37, Kahler also discloses the increments of the spaced formed material increments being selected from a suitable fluid pliable adhesive (Col. 8, Lines 33-36). It would have been also obvious to one of ordinary skill in the art to have applied adhesive to the spacers of Muller, in view of van Rossen or Kahler, to more permanently secure the spacers to the flanks and thus resist filter deformation in use due to applied fluid pressures.

Regarding Claim 38, Muller teaches the communicatively facing increments of the spaced formed material increments being of selected thickness so that the distance between adjacent successive pleat planks and between the spaced upstream and downstream filter face crests is substantially equal (Figs. 2a-5d and especially figure 6).

Regarding Claim 39, Muller teaches the adjacent successive pleat flanks being of a substantially uniform level geometric configuration (Figs. 2a-5d).

Regarding Claim 43, Kahler teaches that the communicatively facing increments being in the form of substantially similar length increment first and second sets with at least one of the sets having a substantially uniform cross-section with at least one certain select increment of the other set being of differing cross-section wherein at least one certain pair of communicatively

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facing increment is tapered to provide tapered spacing and a overall geometric configuration conducive to a select geometric configuration (Figs. 5a-5d).

Regarding Claim 44, Kahler teaches the communicatively facing formed material increments being in increment first and second sets with at least selected increments of at least one set overlapping with respect to selected pleat crests of the other set (Fig. 5d, material 16.1b' also functioning as spacing material).

Regarding Claim 45, Kahler teaches the communicatively facing formed material increments being in formed material increment first and second sets with at least selected formed material increments of one set differing in length from at least one of the lengths of other formed material increments in the sets (see especially Figs. 5c,5d).

Regarding Claim 46, Kahler teaches that the communicatively facing formed material increments being in formed material increment first and second sets with at least one of the selected formed material increments of one set differing in cross-sectional breadth from a cross-sectional breadth of at least one of the other formed material increment of the other set (Figs 5a-5d).

Regarding Claim 47, neither Kahler or Muller disclose the communicatively facing formed material increments being pressure displaced increments (claim 47) or formed in a pleating zone with a back and forth reciprocating motion of a reciprocating mechanism. Determination of patentability in "product by process" claims is based on product itself. In re Thorpe, 227 USDQ 964 (1985). The increment formation process of Muller is deemed to form a pleated filtering structure by a process with is an equivalent alternative to the claimed pressure

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displacement process or reciprocating mechanism process, with no commensurate difference in end product.

For claim 63, the engaging increments of Kahler are aligned and perpendicular to an arbitrary lines extending horizontally along the faces of the planar material. The term “score line” apparently refers to a method of manufacture of the filter pleats, and hence is of little patentable weight.

Claims 40-42, 48, 50-52, and 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahler patent 5,888,262 in view of Muller et al patent 4,954,255, Enbom patent 5,071,555 and Choi patent 6,165,241 (newly applied) as applied to claims 36-39,43-47 and 59-64 above, and further in view of Cusick et al U.S. Patent No. 5,993,501.

Regarding Claims 40 and 50, the previously applied prior art teaches a pleated filter with spacers and also teaches a support layer (see element 6 of Enbom) but does not disclose the material of the filter media. Cusick teaches a pleated fluid filter comprising at least one layer of selected scrim material (#24, 26) serving as a support layer and a selected fine synthetic (Col. 2, Lines 48-60) filter media material (#22) applied to the selected scrim material. It would have been obvious to one of ordinary skill in the art to have further modified the references in view of Cusick, in order to maintain the shape of the filter layer against applied fluid pressures occurring during filtering operation and maintain high stability and shape, synthetic support layer materials being common in the filter art, with various materials being taught in columns 6-7 of van Rossen.

Regarding Claim 41, Cusick discloses that the scrim material is in the range of approximately forty to two hundred grams per square meter in basic weight (Col. 8, Lines 7-18) but does not disclose the fiber size, or stiffness of the scrim material. One of skill in the art



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would by routine experimentation find the optimum fiber size, and stiffness. It would have been obvious to one of skill in the art to make the fiber size, and stiffness of the scrim of Muller in view of Cusick as so desired or required, including as claimed to optimize filtration.

Regarding Claim 42, Cusick discloses that the scrim material includes with a selected hot melt spray (Col. 5, Lines 20-24) of adhesive amorphous material (Col. 6, Lines 28-52) and the filter media material is of a relatively estimated selected weight, fiber, thickness and porosity (Col. 5, Lines 12-20) when applied to the hot melt spray coating.

Regarding Claim 48, Cusick discloses that at least one layer of filter media is of synthetic fibrous material (Col. 2, Lines 48-60).

Regarding Claim 50, Cusick discloses that at least one selected scrim layer has been fed to a forming zone as a downstream support layer and a selected fine synthetic filter media material has been applied thereto (Col. 11, Lines 45-52).

Regarding Claim 51, Cusick discloses that downstream support layer includes synthetic material (Col. 7, Line 54 – Col. 8, Line 18).

Regarding Claim 52, Cusick discloses that the downstream support layer is of wet-laid material (Col. 8, Lines 7-13).

Regarding Claim 54, the previously applied prior art does not disclose that the downstream support layer is of dri-laid material. Determination of patentability in "product by process" claims is based on product itself. In re Thorpe, 227 USDQ 964 (1985). The support layer forming methods of Kahler and Cusick is deemed to be a structure alternative to the dri-laid process.

Regarding Claim 55, Cusick discloses that the downstream support layer is of spunbond material (Col. 8, Lines 7-13).

Regarding Claim 56, Cusick discloses that the selected fine synthetic filter media is of meltblown material (Col. 6, Lines 5-9).

Claims 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kahler patent 5,888,262 in view of Muller et al patent 4,954,255, Enbom patent 5,071,555 and Choi patent 6,165,241 (newly applied) and further in view of Cusick et al U.S. Patent No. 5,993,501 as applied to claims 36-39,43-47 and 59-63 and also 40-42,48,50-52 and 54-56 above, and additionally in view of Niccum et al., U.S. Patent No. 3,849,314.

Regarding Claim 49, the previously applied prior art does not disclose that the filter media is of cellulose material. Niccum teaches a pleated fluid filter comprising a cellulose filter media (Col. 2, Lines 53-56). It would have been obvious to one of ordinary skill in the art to have further modified the references with the element of Niccum because it is a material of manufacture common in the filter art.

Claim 53 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kahler patent 5,888,262 in view of Muller et al patent 4,954,255, Enbom patent 5,071,555 and Choi patent 6,165,241 (newly applied) and also Cusick as applied to claims 36-39,43-47,50-52 and 59-64 above, and further in view of Osendorf patent 5,427,597.

Regarding Claim 53, the previously applied prior art does not disclose that the downstream support layer is of cellulose material. Osendorf teaches a pleated fluid filter comprising a cellulose support layer (Col. 3, Lines 1-3). It would have been obvious to one of ordinary skill in the art to modify the previously applied prior art in view of Cusick with the element of Osendorf because it is a material of manufacture common in the filter art.

Claims 57 and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahler patent 5,888,262 in view of Muller et al patent 4,954,255, Enbom patent 5,071,555 and Choi

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patent 6,165,241 (newly applied) and also Cusick as applied to claims 36-39,43-47,50-52 and 59-64 above, and further in view of Kenigsberg et al., U.S. Patent No. 5,156,780.

The previously applied prior art does not disclose an additive being added to the filter media. Kenigsberg teaches a process for adding a fluoro-chemical to a porous media (Col. 4, Lines 33-38). It would have been obvious to one of ordinary skill in the art to modify the primary references with the element of Kenigsberg in order to achieve permanent water and oil repellency while maintaining the porosity of the filter (Col. 3, Lines 52-54).

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The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 36-63 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No.

11/147,681. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claims and claims of ‘681 commonly recite a pleated fluid filter arrangement comprising longitudinally extending adjacent pleat flanks with crests and valleys, and adhesive material engaging planar portions of the opposed pleat flanks.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Applicant's arguments filed on April 3, 2009 have been fully considered, to the extent they remain pertinent to the new grounds of rejection, but they are not persuasive.

It has been argued that Kahler in view of Muller fail to teach 1<sup>st</sup> and 2<sup>nd</sup> pairs of adhesive increments formed on 1st and 2nd sides of pleat flanks in combination with adhesive material or increments directly engaging each of 1<sup>st</sup> and 2<sup>nd</sup> sides of the single planes of the flanks; Kahler instead disclosing pairs of engaging adhesive increments instead applied to and engaging embossments of the pleat flanks that are not in the defined single planes of the flanks. It is submitted that such direct engagement of adhesive spacer increments is shown in embodiments including the concepts of figure 5d of Kahler, and further supported by Enbom.

It is also argued that Enbom fails to teach adhesive increments of selected length that are centrally oriented between and spaced from upstream and downstream crests; instead teaching a plurality of embossed spacer arrangements rather than adhesive increments disposed along the planar filter material, adhesive material only being disposed on the surfaces of embossments and not directly on the planar filter material. Enbom does teach direct engagement of adhesive spacer increments or pairs thereof to the planar flanks, although the idea of central orientation of adhesive increments is shown in the primary reference Kahler.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at telephone number 571-272-1140. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith, can be reached at 571-272-1166. The fax phone number for the examining group where this application is assigned is

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571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

**4/29/2009**

**/Joseph W. Drodge/**

**Primary Examiner, Art Unit 1797**